India

Underweight *(no change)*

Highlighted Companies

Vinati Organics

ADD, TP Rs2111, Rs2108 close

Revival in demand for ATBS resulting in higher exports and also a likely fall in key input material acrylonitrile's prices will lead to higher profits. At the same time, ramping up butyl phenol compounds (antioxidants) diversifies the product basket. After a muted FY24, we expect the company to be back on the growth path from FY25F. Retain our ADD rating on the stock.

Summary Valuation Metrics

P/E (x)	Mar24-A	Mar25-F	Mar26-F
Vinati Organics	54.7	42.96	39.08

P/BV (x)	Mar24-A	Mar25-F	Mar26-F
Vinati Organics	8.58	7.44	6.49

Dividend Yield	Mar24-A	Mar25-F	Mar26-F
Vinati Organics	0.42%	0.53%	0.59%

Chemicals - Overall

ABS and polystyrene are in a sweet spot

- There's a fall in acrylonitrile & styrene prices due to huge overcapacity & their raw material prices are also falling, which bode well for ABS manufacturers.
- ABS & polystyrene have high potential as Indian demand is rising & also import substitution (ABS imports at 130kt, polystyrene imports at 50kt in 2023).
- The fall in acrylonitrile prices will help Vinati Organics as well. Please note that acrylonitrile is the key input material for ATBS.

Raw material overcapacity and falling prices to drive ABS

The current market dynamics in the chemical industry, particularly for acrylonitrile butadiene styrene (ABS) manufacturers, are poised for a significant shift due to falling acrylonitrile and styrene prices. The price decline is largely attributed to substantial overcapacity in global production. For instance, as of 2023-end, global styrene production capacity touched approximately 44mt, far outstripping the demand of about 33.4mt. Similarly, global production capacity of acrylonitrile is around 8.6mt per year, with demand lagging at approximately 5.5mt. This oversupply, combined with the drop in raw material costs like that of ethylene and benzene, has driven styrene prices down. Similarly, acrylonitrile, a critical input for making ABS, is witnessing a glut, with its global production capacity at 8.6mt against the demand which stands at 5.5mt.

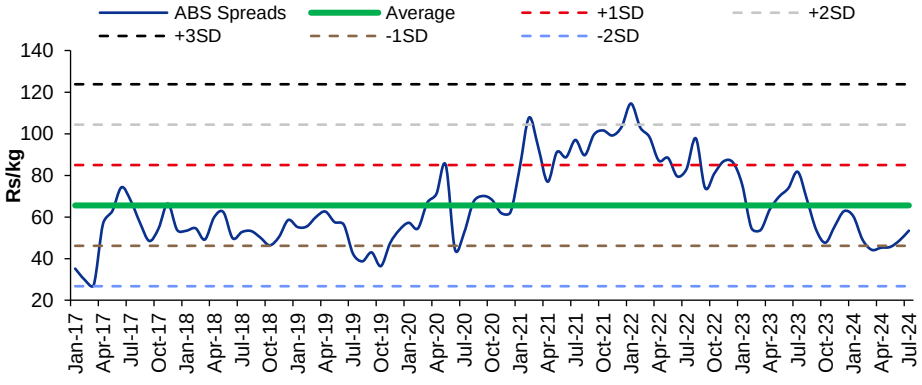
Local ABS market set for growth on high demand, import substitution

India's demand for ABS and polystyrene is on a robust growth trajectory, underpinned by rising consumption and the need for import substitution. In 2023, India imported around 130kt of ABS and 50kt of polystyrene, primarily from South Korea, Taiwan, and the Netherlands. The reliance on imports underscores a significant opportunity for local manufacturers to ramp up production and capture a larger share of the market. Companies like Bhansali Engineering Polymers and Supreme Petrochem are already planning significant capacity expansions, with the former aiming to increase its ABS capacity from 137kt to 200kt within the next three years. As these expansions come online, the Indian market could see reduced import dependence, thereby improving the trade balance and providing more stable supply chains.

Vinati to gain from falling acrylonitrile prices, raising its profit margin

The decline in acrylonitrile prices will also benefit companies beyond the ABS sector. Vinati Organics, for instance, which uses acrylonitrile as a key input for producing acrylamide tertiary butyl sulfonic acid (ATBS), stands to gain significantly. With acrylonitrile prices falling, Vinati Organics' production costs are expected to decrease, leading to improved margins and a stronger competitive position in the global specialty chemicals market. Given the ongoing overcapacity in acrylonitrile production and stable demand, this cost advantage is likely to persist, further strengthening the financial performance of companies reliant on this critical input.

Figure 1: ABS spreads over raw material are rising from their multi-year lows



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Research Analyst(s)

Satish KUMAR
T (91) 22 4161 1562
E satish.kumar@incredresearch.com

Abbas PUNJANI
T (91) 22 4161 1598
E abbas.punjani@incredresearch.com

Pratyush KAMAL
T (91) 2241611549
E pratyush.kamal@incredresearch.com

ABS producers appear to be in a sweet spot

Like most bulk chemicals, acrylonitrile butadiene styrene (ABS) producers appear to be in a sweet spot for at least the next two-to-three years. In this report, we have analysed all the input materials for ABS and the global demand-supply dynamics of the polymer as well.

Styrene – prices of key input materials for ABS will fall

Dehydrogenation of ethylbenzene results in styrene and hence, base chemicals for styrene are ethylene and benzene ➤

Styrene is primarily produced through the dehydrogenation of ethylbenzene. This process involves several steps and chemical reactions:

Ethylbenzene production: Ethylbenzene is first produced by the alkylation of benzene with ethylene. The reaction is typically catalyzed by a Friedel-Crafts catalyst, such as aluminum chloride ($AlCl_3$), in the presence of an acidic environment. The reaction can be represented as:

$C6H6+C2H4 \rightarrow C6H5C2H5$

Dehydrogenation of ethylbenzene: Ethylbenzene is then dehydrogenated to form styrene. This process is endothermic and typically carried out at high temperatures (around 600-650°C) and low pressure. A catalyst, such as iron oxide promoted with potassium oxide, is used to facilitate the reaction. The reaction can be represented as:

$C6H5C2H5 \rightarrow C6H5CH=CH2+H2$

This method is the most widely used industrial process for styrene production due to its efficiency and relatively simple set-up.

Styrene is hugely oversupplied in global market ➤

- The global styrene production capacity as of 2023-end is approximately 44 mtpa. This capacity is expected to experience significant growth due to planned and announced projects, primarily in Asia, Africa, and South America.
- In 2023, the global demand for styrene was approximately 33.425mt. This reflects the growing consumption of styrene in various industries such as packaging, automotive, construction, and consumer goods. The market for styrene is expected to continue growing, driven by its applications in producing polystyrene, acrylonitrile butadiene styrene (ABS), and styrene-butadiene rubber (SBR).
- The global demand for styrene is likely to post a 5% CAGR over the next one year, but significant capacity is also getting commissioned and the overall capacity by the end of 2030F is likely to be more than 50mt.

As usual, Asia Pacific is the biggest demand and capacity driver for styrene ➤

In 2023, the demand for styrene in the Asia Pacific region was significant, accounting for over half of the global demand. The region's dominance in the styrene market is driven by rapid industrialization, urbanization, and extensive infrastructure projects. The Asia Pacific styrene market witnessed substantial growth, bolstered by strong demand from downstream industries such as packaging, automotive, and construction.

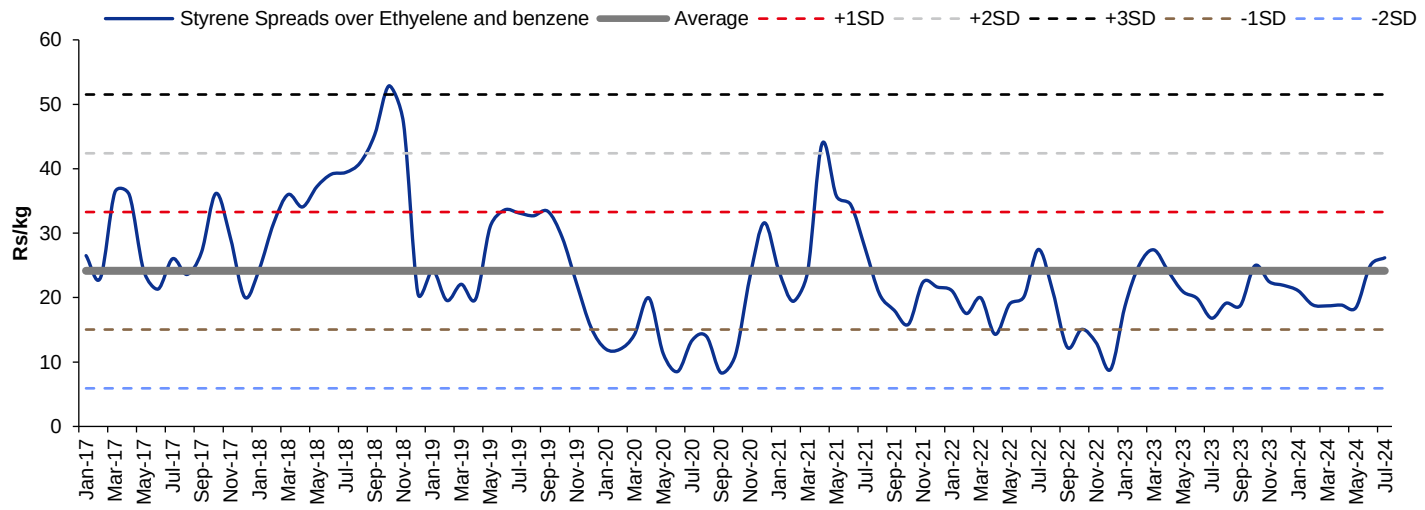
The styrene production capacity in the Asia Pacific region is significant, reflecting the region's dominant position in the global market. As of 2023-end, the Asia Pacific region accounts for approximately 50% of global styrene capacity. This substantial share is driven primarily by extensive production capacities in countries such as China, Japan, South Korea, and India.

China has witnessed significant capacity additions, including the commissioning of 3.7mt of new styrene capacity in 2023 alone. This expansion underscores the

country's pivotal role in the global styrene market. Other major contributors in the region include Japan and South Korea, where companies like LG Chem and INEOS Styrolution have substantial production capabilities.

The recent huge capacity addition is showing on spreads which are falling ➤

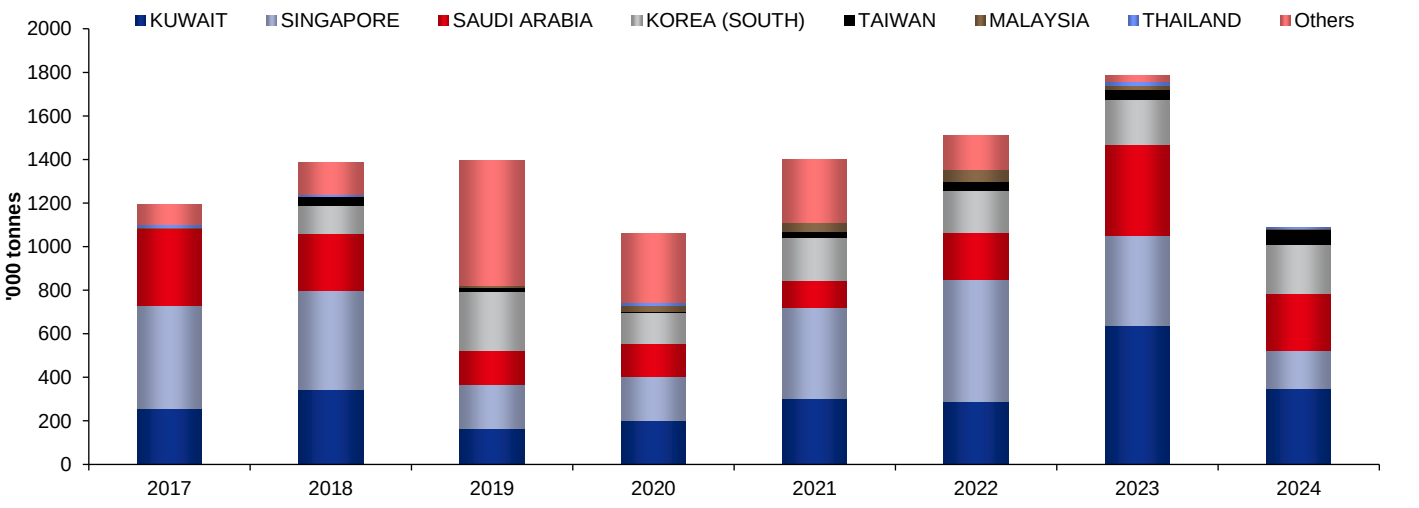
Figure 2: Styrene spreads over raw material have remained depressed, barring a recent bounce; however, in our view, this is temporary, and styrene will fall again



SOURCE: INCRED RESEARCH, COMPANY REPORTS

India primarily imports styrene to meet its requirements➤

Figure 3: India imports ~1.9mt of styrene; Kuwait, Singapore and Saudi Arabia are the primary exporters of styrene to India



SOURCE: COMPANY REPORTS, INCRED RESEARCH

IOCL is installing India's first styrene capacity ➤

Indian Oil Corporation or IOCL is installing India's first styrene capacity of 0.9mt at a capex of Rs44.5bn. This capacity is likely to come online in 2026F, and this will further ease the prices of styrene in the global market. Indian companies will save on freight costs.

Acrylonitrile - the second important input material for ABS

The input and output ratio of ABS ➤

- Monomer feed ratio: acrylonitrile (25%), butadiene (15%) and styrene (60%), assuming 1,000kg of the input material.
- Output: Polymerized ABS: 920kg (after accounting for 92% of yield efficiency).

Acrylonitrile is a key product input for ABS, which is oversupplied ➤

The global production capacity of acrylonitrile is estimated to be around 8.6mt per year and around 3mt capacity is in the pipeline. This capacity is distributed across several key regions, with major production facilities located in Asia-Pacific, North America, and Europe.

The global demand for acrylonitrile is estimated to be approximately 5.5mt per year. This demand is driven by its extensive use in various industries, including the production of ABS, acrylic fibres, and nitrile rubber.

Asia Pacific is the biggest demand driver for acylonitrile ➤

- **Asia Pacific**: The largest contributor to both capacity and demand, driven by industrial growth and increased consumption in the automotive and electronics sectors.
- **North America**: Significant capacity with steady demand, supported by major manufacturers and advancements in production technology.
- **Europe**: Moderate capacity and demand, influenced by environmental regulations and market maturity.

Key Factors Influencing Market Dynamics

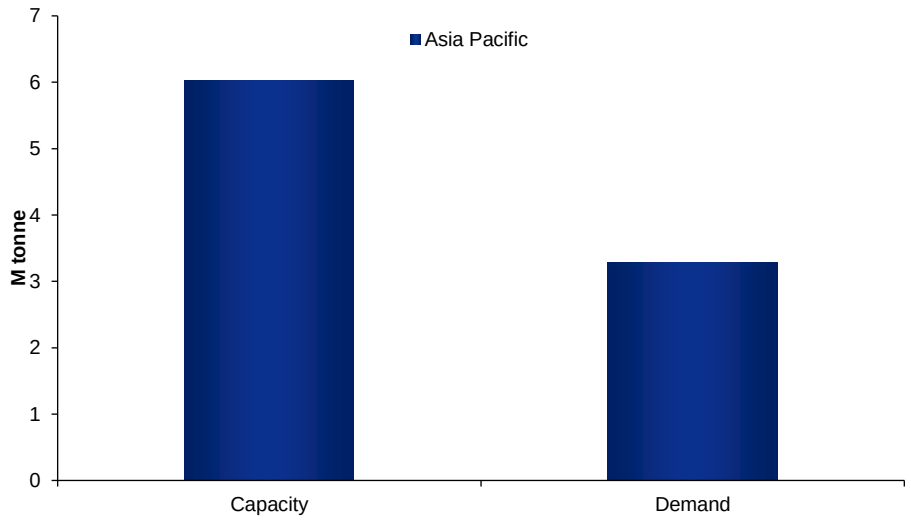
- **Technological advances**: Innovations in production processes are improving efficiency and capacity utilization.
- **Sustainability initiatives**: Rising focus on bio-based acrylonitrile and reduction of greenhouse gas emissions.
- **Economic factors**: Fluctuations in raw material prices and geopolitical factors can impact production and supply chain dynamics.

Detailed Regional Analysis of Acrylonitrile Market ➤

Asia Pacific

- **Capacity**: Driven by China, Asia Pacific has ~70% of the of the global capacity of 8.6mt.
  - By 2032F, around 3mt of new acrylonitrile capacity is projected to be added in the Asia Pacific, mainly in China.
  - Among present large acrylonitrile producers in China, PetroChina Petrochemical, Zhejiang Petrochemical and Jiangsu Sailboat Petrochemical are planning to add a total capacity of 1,700kt by 2032F.
  - Multiple new capacities are expected to get started between 2023 to 2027F, with the average capacity size of 260kt.
  - Some other prominent players planning to add capacity are Kinga, CNOOC, and Tianchen Qixiang, New Material.
- **Demand**: In the Asia Pacific region, demand is driven by rapid industrialization and urbanization, especially in countries like China and India. The automotive, electronics, and construction industries are the primary consumers of acrylonitrile. The demand in this region is estimated to be around 2.5mt per year.

Figure 4: Asia Pacific has almost 6mt of acrylonitrile capacity and demand is ~3.2mt, posting ~2% CAGR (all data for calendar year 2023)



SOURCE: INCRED RESEARCH, COMPANY REPORTS

North America

- **Capacity**: North America, with the US being the primary contributor, has significant acrylonitrile production capacity. Major producers like INEOS and Ascend Performance Materials operate large-scale production facilities. The total capacity in North America is estimated to be around 1.5mt per year.
- **Demand**: In North America, demand is driven by the automotive and construction sectors, as well as the production of ABS and nitrile rubber. The demand in this region is estimated to be around 1.2mt per year.

Europe

- **Capacity**: Europe has a moderate production capacity for acrylonitrile, with significant contribution from companies like INEOS and Solvay. The total capacity in Europe is estimated to be around 1.2mt per year.
- **Demand**: In Europe, demand is stable, driven by the automotive, electronics, and textile industries. The demand in this region is estimated to be around 1mt per year.

Key Factors:

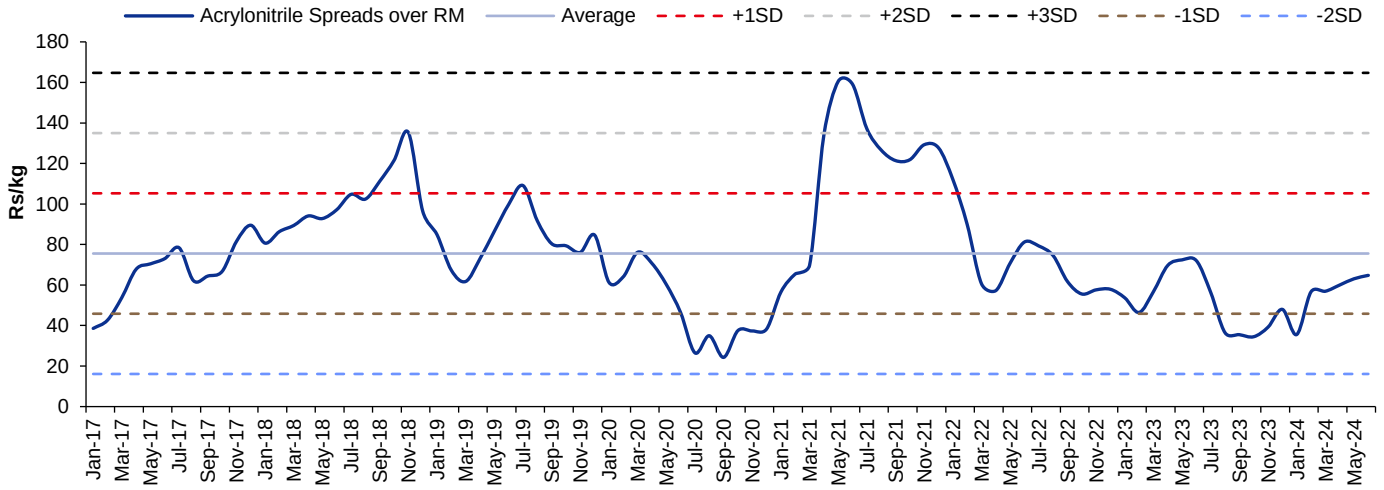
- **Environmental regulations**: Stringent environmental regulations impact production processes and capacity expansions.
- **Market maturity**: A mature market with a focus on sustainability and efficiency.

Other Regions

- **Middle East and Africa**: The production capacity in this region is relatively low compared to other regions, with some emerging capacity in countries like Saudi Arabia. Demand is also lower but growing due to industrial development.
- **South America**: Limited production capacity and demand, with a gradual growth driven by the automotive and construction sectors.

Acrylonitrile spreads over raw material will remain depressed in the coming future ➤

Figure 5: We don't see any significant increase in acrylonitrile spreads in the coming future (raw materials for acrylonitrile are ammonia and propylene); at the same time, base prices of propylene and ammonia are unlikely to rise, resulting in a correction in acrylonitrile prices



SOURCE: INCRED RESEARCH, COMPANY REPORTS

As we have written earlier that lower LNG prices will drive down ammonia prices, but ammonia spreads will increase. Please see the report: IN: Chemicals - Overall - Ammonia's spreads over natural gas to rise. Huge overcapacity in petrochemicals is driving down the prices of ammonia as well. Hence, while spreads will go down, at the same time, raw material prices of acrylonitrile will also fall. Thus, the users of acrylonitrile will benefit.

ABS spreads over raw material are recovering and are likely to rise further

Global demand for ABS stands at 10.2mt in CY23 and is posting @2% CAGR over the last 10 years ➤

The global demand for acrylonitrile butadiene styrene (ABS) has been growing steadily, and as of recent estimates, it is around 10mmt (million metric tonne) per year. This demand is driven by its wide range of applications across various industries such as automotive, electronics, consumer goods, and construction.

Key Industries Driving Demand

Automotive

ABS is widely used in the automotive industry for parts such as dashboards, wheel covers, and body panels due to its durability, impact resistance, and aesthetic properties.

Electronics

The electronics industry is a significant consumer of ABS, utilizing it for the production of housings for computers, televisions, mobile phones, and other electronic devices.

Consumer Goods

ABS is used in a variety of consumer goods, including toys (notably LEGO bricks), luggage, kitchen appliances, and musical instruments, owing to its toughness and ease of moulding.

Construction

In the construction industry, ABS is used in the manufacture of pipes, fittings, and other construction-related components due to its resistance to chemicals and physical impact.

Asia Pacific is key demand centre for ABS

- The Asia Pacific is the fastest-growing region for ABS, representing about 75% of global ABS demand. The region is further poised to witness strong growth in the forecast period on the back of strong demand for ABS from the electrical & electronics, automotive, and construction industries.
- Total ABS consumption in North America was estimated to be more than 860kt in 2023. The US is a major consumer in North America followed by Mexico. The country has witnessed growth rate in the range of 1-3% in the past few years.

In the coming years, demand growth can accelerate

ABS demand in the automotive Industry can increase as fuel efficiency becomes increasingly important

In the current scenario, plastics only account for a small share of the raw materials used in the automotive industry. According to the American Plastics Council, reinforced plastics account for around 360 pounds of the total weight of an average US light automobile. With global automotive manufacturers investing in developing highly efficient automobiles, the need for further weight reduction without affecting the security of its users will be crucial. With every 10% reduction in the weight of automobiles, efficiency can be enhanced, which is attained by the decrease in fuel consumption by 5% to 7%.

Unexplored opportunities of replacing metals in the automotive and global tightening of environmental regulations for automobiles to improve fuel mileage, control emissions, and reduce fuel permeation are expected to drive the ABS market. Growth in the production of automobiles and initiatives taken by original equipment manufacturers to increase fuel efficiency, reduce emissions, eliminate fluid leaks, and improve efficiency by reducing the weight of the vehicles will further drive the demand for ABS in the long-term forecast.

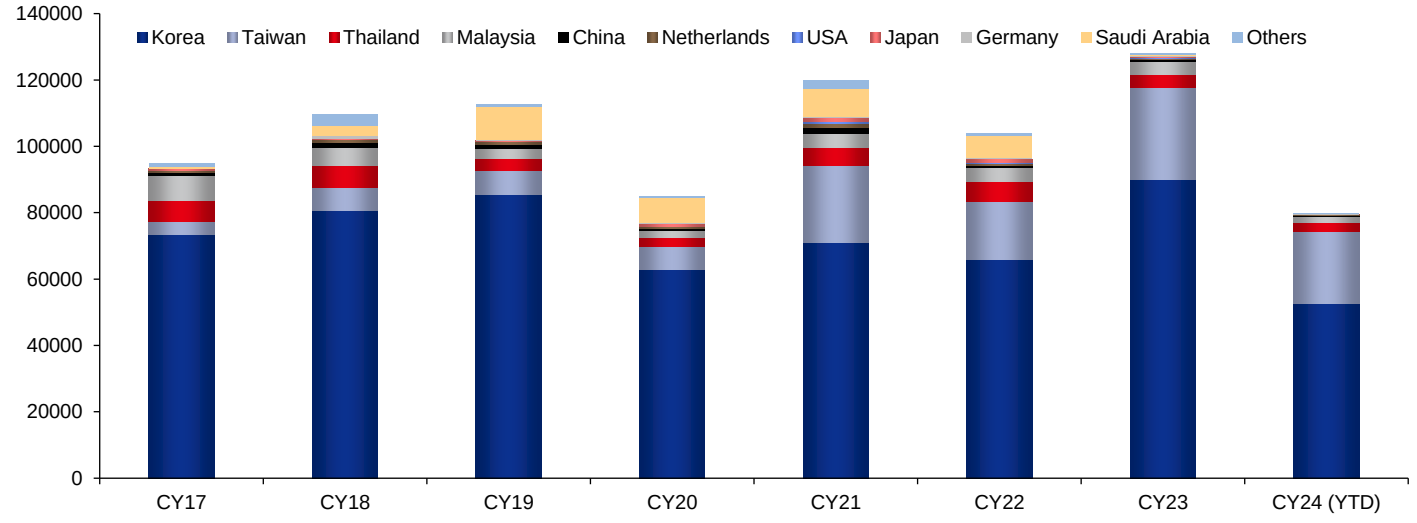
ABS demand will also be led by higher electronics usage

Electronics application dominates the global ABS market and is expected to remain the largest application throughout the long-term forecast. ABS is used in manufacturing several parts of electronics equipment like computers, laptops, housings for telephones, keyboards, mobile phones, and other computer hardware. Laptop and computer dominate the global electronics ABS market and is further expected to post the highest CAGR in the forecast period owing to rising demand for remote working and online education.

Laptops & computers are one of the essential consumer appliances in the market. With the day-by-day addition of innovative technologies and multi-functional facilities, the demand for these products is on the rise. Asia-Pacific is the power hub for the electronics industry. Countries like China, Japan, South Korea, Singapore Taiwan, and India have a significant manufacturing base for electronics. Electronics account for a decent share of their economy as well. Furthermore, with rising growth opportunities, companies from Europe and North America are investing in this region by bringing up new manufacturing facilities or through joint ventures.

India is one of the major importers of ABS »

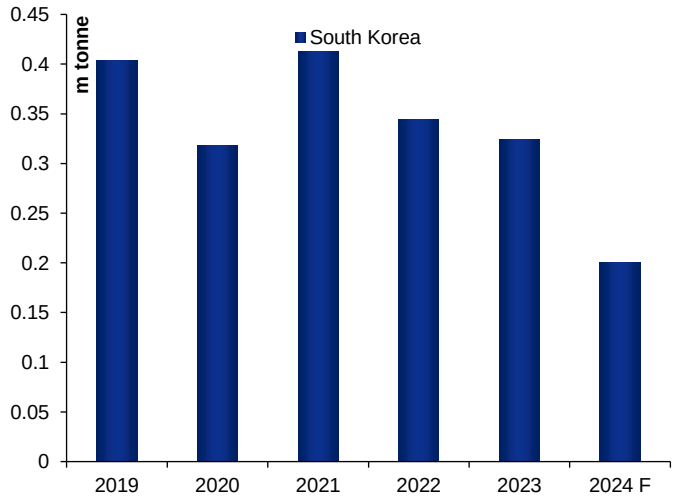
Figure 6: ABS is mostly imported in India; overall imports are ~130kt and the major exporter is South Korea



SOURCE: INCRED RESEARCH, COMPANY REPORTS

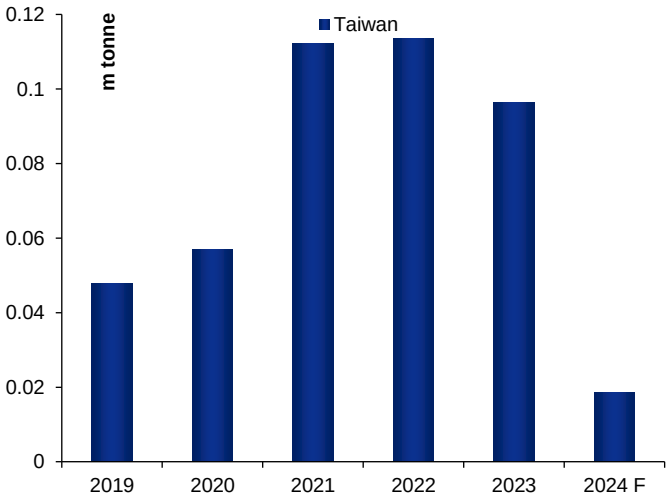
Some major exporters of ABS to India are very nearly becoming net importers and hence, their exports to India can reduce »

Figure 7: South Korea's net exports are declining…



SOURCE: INCRED RESEARCH, COMPANY REPORTS

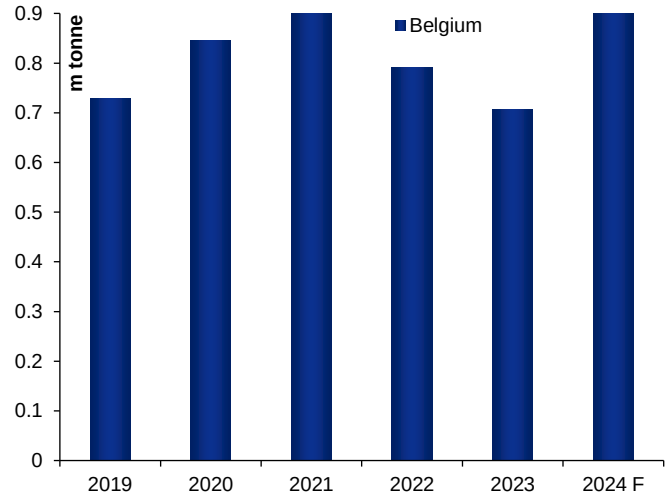
Figure 8: …as Taiwan's net exports are reducing



SOURCE: INCRED RESEARCH, COMPANY REPORTS

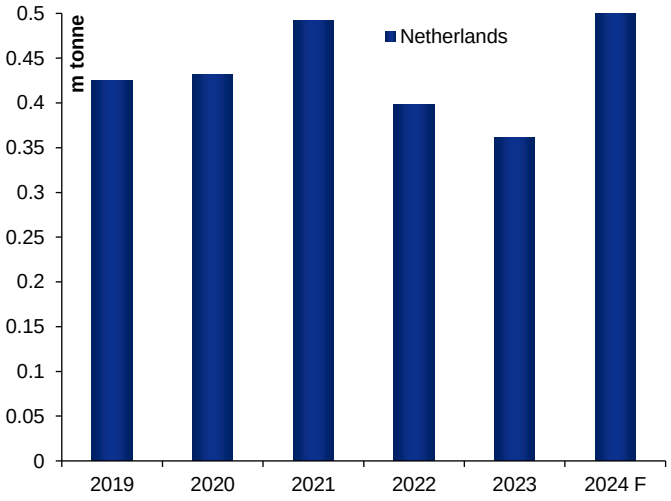
India's imports will increasingly rely on Netherlands and Belgium, resulting in supply chain uncertainty and higher freight costs ➤

Figure 9: Belgian net exports are likely to increase in CY24F…



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Figure 10: …and so is the case with Netherlands



SOURCE: INCRED RESEARCH, COMPANY REPORTS

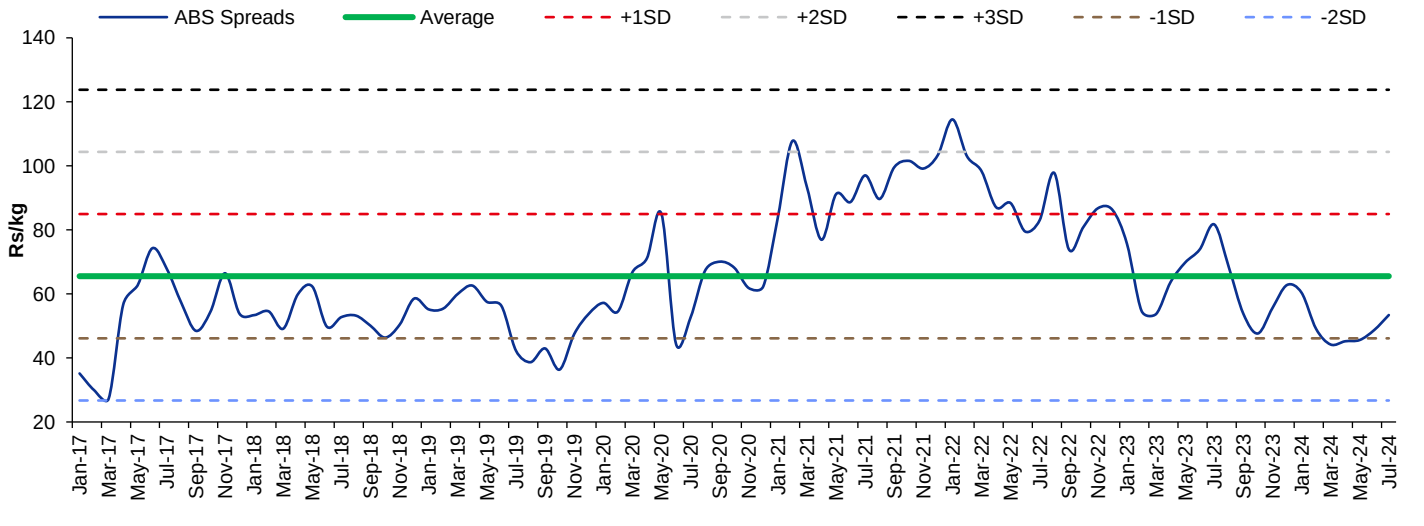
Hence, there is an urgent need for capacity expansion in India, but a long lead time will not help the self-reliance drive➤

Please note that ABS is critical for the Indian automobile and consumer goods industry and hence, its capacity expansion is critical to the country's need for self-reliance. Some main players in India are expanding their capacity but their capacity expansion timeline indicates that India will keep importing the material.

- Bhansali Engineering Polymers - 137kt of ABS capacity. It is planning to expand to 200kt in the next three years.
- INEOS Styrolution- Current capacity is 85kt, which will expand to 210kt over the next four years.
- Styrenix – current capacity is 105kt, which will expand to 200kt by FY27-end.
- Supreme Petrochem- Planning 140kt of ABS capacity.

Consequently, ABS imports will continue in India and its spreads over raw material will increase ➤

Figure 11: Given the global dynamics, India's lack of capacity and approximately 9% growth in demand; imports will continue in India and domestic players will see increased profitability as ABS spreads recover from their bottom



SOURCE: INCRED RESEARCH, COMPANY REPORTS

ABS manufacturing is a highly energy-intensive process and each tonne of ABS can consume anywhere between 1-5 gigajoule of energy. Hence, there can be a

wide difference between EBITDA/t across companies making the same end product.

Polystyrene's spreads over raw material are also likely to improve

Polystyrene is manufactured from styrene through a polymerization process ➤

- **Styrene monomer production**: Styrene, the monomer, is produced from ethylbenzene. Ethylbenzene is dehydrogenated in the presence of a catalyst to form styrene.
- **Polymerization**

  Initiation: The polymerization of styrene is initiated by heat or a chemical initiator. This process can be carried out using various methods, including bulk solution, suspension, or emulsion polymerization.

  Propagation: During polymerization, styrene monomers react with each other to form long chains of polystyrene. The initiator helps to break the double bond of the styrene monomer, creating reactive sites that link together.

  Termination: The polymerization process is terminated when the reactive sites are neutralized, stopping the chain reaction.
- **Types of polymerization processes**

  Bulk polymerization: This process involves the polymerization of pure styrene monomer in the presence of a catalyst. It produces high-purity polystyrene but can be difficult to control due to the exothermic nature of the reaction.

  Solution polymerization: In this process, styrene is dissolved in a solvent, and polymerization occurs in the solution. This method allows for better temperature control.

  Suspension polymerization: Styrene monomer is dispersed in water with the help of stabilizers, and polymerization occurs in the droplets. This method produces beads of polystyrene.

  Emulsion polymerization: Styrene monomer is emulsified in water with the help of surfactants, and polymerization occurs in the micelles. This method produces latex particles of polystyrene.
- **Processing and shaping**

  Extrusion and moulding: The resulting polystyrene can be melted and shaped into various forms using extrusion, injection moulding, or other shaping processes.

  Foaming: Polystyrene can also be expanded into foam products by incorporating a blowing agent, such as pentane, during the polymerization process. The blowing agent creates bubbles in the polystyrene, resulting in a lightweight, foam material.
- **Final products**

  Polystyrene is used to manufacture a wide range of products, including packaging materials, insulation, disposable cutlery, and various consumer goods.

Polystyrene manufacturing is an energy-intensive process; falling energy prices will add to profitability of polystyrene makers ➤

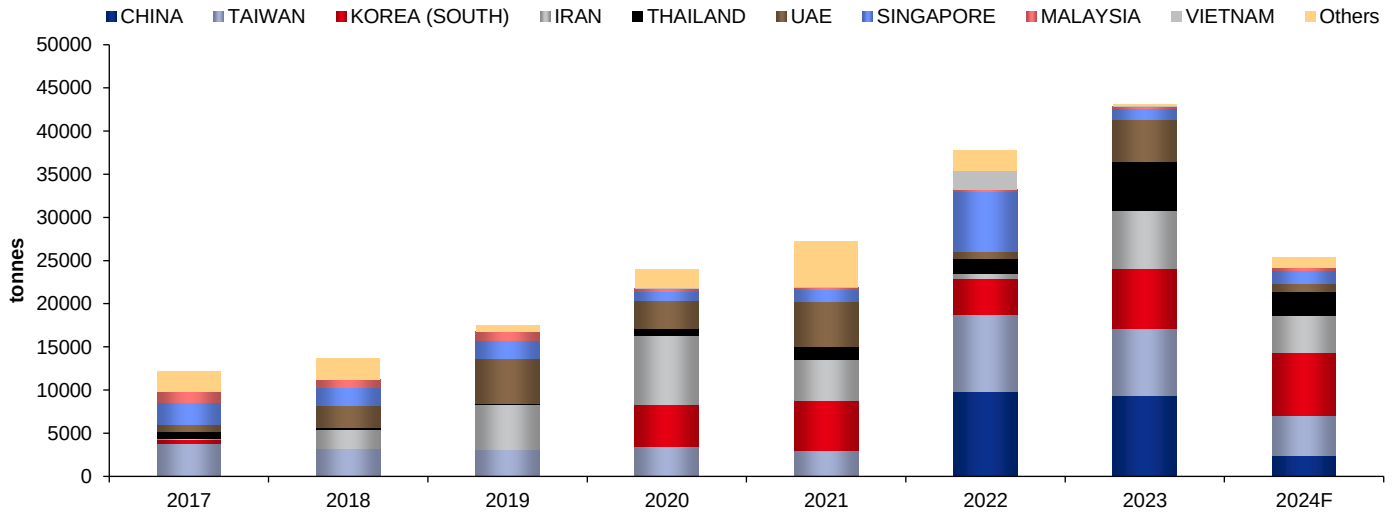
- The energy consumption for manufacturing polystyrene from styrene can vary, depending on the specific production process and efficiency of the facility. However, we can provide an approximate range based on typical industrial data.
- **Styrene production**
  - Producing styrene from ethylbenzene requires energy, typically in the range of 10-20GJ (gigajoules) per tonne of styrene.

- **Polymerization process**
  - The energy required for the polymerization of styrene into polystyrene is generally lower than the energy required to produce styrene. It typically ranges from 2-4GJ per tonne of polystyrene.

Assuming coal as the source of energy, the cost of energy per tonne of polystyrene can vary from 80-160 kg of coal. Hence, process efficiency matters a lot and falling energy prices will lower the operating cost of polystyrene manufacturing.

India is an importer of polystyrene »

Figure 12: China and Iran are rapidly replacing Taiwan as the biggest exporter of polystyrene to India

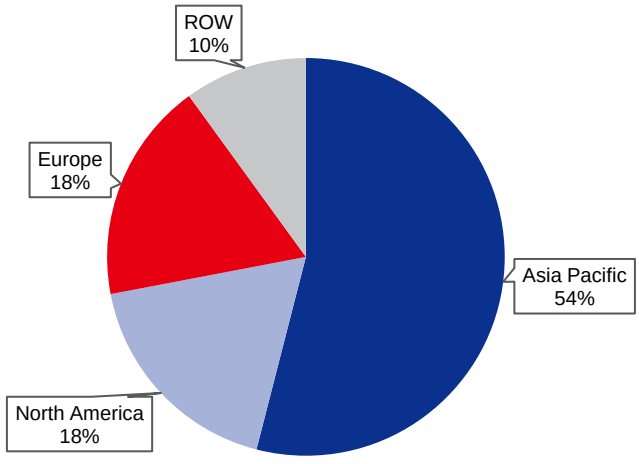


SOURCE: INCRED RESEARCH, COMPANY REPORTS

Global overcapacity in polystyrene is limited»

While the global demand for polystyrene is ~11.7mt in CY23, the installed capacity is 15.44mt.

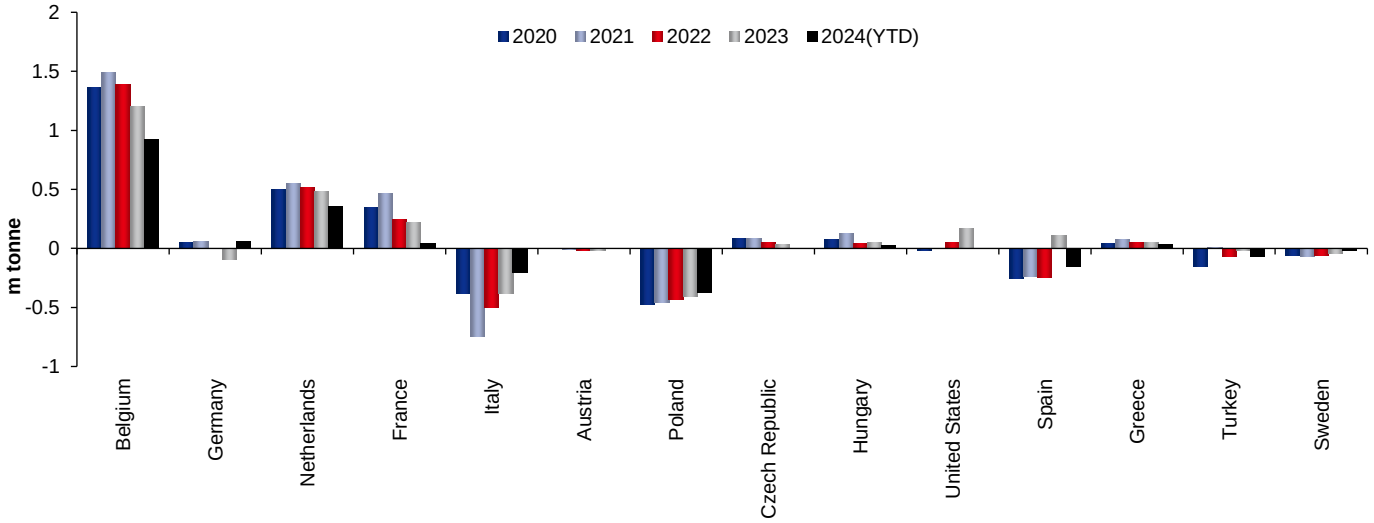
Figure 13: Global capacity of polystyrene is mainly centered in Asia Pacific



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Relative low density means freight costs form a significant component of the overall costs and thus limits inter-regional trade »

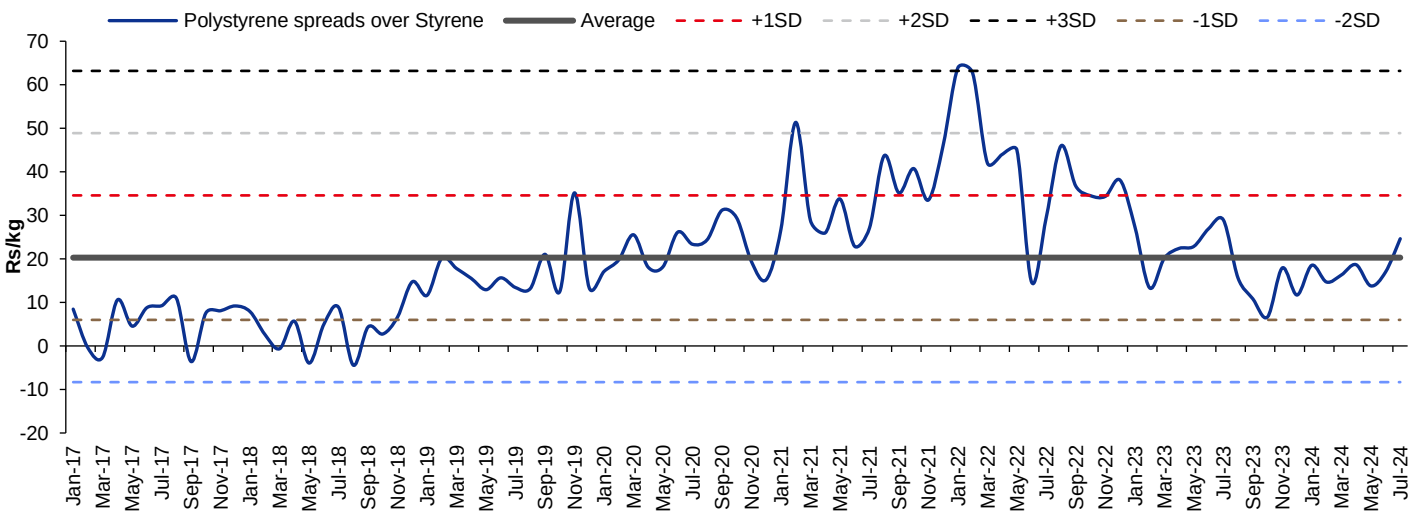
Figure 14: Polystyrene and styrene manufacturing is an energy-intensive process, and it is likely that European production and exports will come down



SOURCE: INCRED RESEARCH, COMPANY REPORTS

The spreads of polystyrene over styrene are rising »

Figure 15: The changing trade and demand dynamics are leading to increased spreads of polystyrene over styrene



SOURCE: INCRED RESEARCH, COMPANY REPORTS

Key ABS producers in India and their product portfolio

Bhansali Engineering Polymers (BEPL) »

Bhansali Engineering Polymers (BEPL) is a leading manufacturer of acrylonitrile butadiene styrene (ABS) resins in India. Here are the key ABS products offered by the company:

General-Purpose ABS (GP-ABS)

- Description**:** GP-ABS is widely used for applications requiring good toughness, gloss, and dimensional stability.
- Applications**:** Automotive components, consumer electronics, household appliances, and toys.

High Impact ABS (HI-ABS)

- Description: HI-ABS is designed for applications requiring higher impact strength while maintaining other desirable properties of ABS.
- Applications: Automotive parts, helmets, luggage, and industrial equipment.

Flame Retardant ABS

- Description**:** This type of ABS is formulated to meet fire safety standards and is used in applications where fire resistance is crucial.
- Applications**:** Electrical and electronic enclosures, home appliances, and safety equipment.

Electroplating Grade ABS

- Description: Electroplating Grade ABS is designed for applications requiring a metallic finish through electroplating.
- Applications: Automotive grilles, badges, and decorative items.

High Gloss ABS

- Description**:** This ABS variant is formulated to provide a high-gloss finish, making it suitable for aesthetic applications.
- Applications**:** Consumer electronics, automotive interiors, and cosmetic packaging.

ABS Alloys

- Description**:** BEPL also offers ABS alloys that combine ABS with other polymers like polycarbonate (PC) to enhance specific properties such as heat resistance or toughness.
- Applications**:** Automotive components, electrical housings, and medical devices.

Figure 16: All products of Bhansali Engineering and Polymers and their product inputs are shown in the table below

	Acrylonitrile (AN)	Butadiene (BD)	Styrene Monomer (SM)	Other additives
General-Purpose ABS (GP-ABS)	20-30%	15-25%	50-65%	1-5%
High Impact ABS (HI-ABS)	15-25%	20-30%	45-60%	1-5%
Flame Retardant ABS	20-30%	10-20%	45-55%	~5-10% (brominated or phosphorous-based compounds)
Electroplating Grade ABS	20-30%	15-25%	50-60%	1-5% (electroplating enhancers, stabilizers)
High Gloss ABS	20-30%	15-25%	50-60%	2-5% (acrylics, processing aids)
ABS Alloys	10-20%	5-15%	30-50%	~15-35% (polycarbonate)

SOURCE: INCRED RESEARCH, COMPANY REPORTS

Supreme Petrochem (SPL) ➤

Supreme Petrochem has also expanded into the production of ABS . Here are the key ABS products offered by the company:

General Purpose ABS (GP-ABS)

Description: This type of ABS is widely used for applications requiring a good balance of toughness, gloss, and ease of processing.

Applications: Automotive interiors, consumer electronics, household appliances, and toys.

High Impact ABS

Description: High impact ABS is formulated to offer enhanced impact resistance, making it suitable for more demanding applications.

Applications: Automotive components, helmets, luggage, and protective equipment.

Electroplating Grade ABS

Description: This grade is specially designed for applications that require a metallic finish through electroplating, offering good adhesion and uniformity.

Applications: Automotive grills, logos, badges, and other decorative items.

Flame Retardant ABS

Description: Flame retardant ABS is designed to meet fire safety standards, suitable for applications where flammability is a concern.

Applications: Electrical and electronic housings, appliances, and safety equipment.

High Gloss ABS

Description: This variant is tailored to provide a high-gloss finish, making it ideal for aesthetic applications where appearance is critical.

Applications: Automotive interior trims, consumer electronics, and cosmetic packaging.

ABS Alloys

Description: SPL also produces ABS alloys by blending ABS with other polymers like polycarbonate (PC) to enhance properties such as heat resistance, toughness, and chemical resistance.

Applications: Automotive parts, electrical components, and medical devices.

Customized Grades

Description: SPL offers customized ABS grades tailored to specific customer requirements, including colour, mechanical properties, and processing characteristics.

Applications: Various industries, depending on customer needs.

Figure 17: All products of Supreme Petrochem and their raw material inputs are shown in the table below

	Acrylonitrile (AN)	Butadiene (BD)	Styrene Monomer (SM)	Other additives
General-Purpose ABS (GP-ABS)	20-30%	15-25%	50-65%	1-5% (stabilizers, colorants)
High Impact ABS (HI-ABS)	15-25%	20-30%	45-60%	1-5% (stabilizers, colorants)
Electroplating Grade ABS	20-30%	15-25%	50-60%	1-5% (e.g., electroplating enhancers, stabilizers)
Flame Retardant ABS	20-30%	10-20%	45-55%	5-10% (e.g., brominated or phosphorus-based compounds)
High Gloss ABS	20-30%	15-25%	50-60%	2-5% (acrylics, processing aids)
ABS Alloys (e.g., ABS/PC Alloys)	10-20%	5-15%	30-50%	~15-35% (polycarbonate)

SOURCE: INCRED RESEARCH, COMPANY REPORTS

Styrenix

Styrenix (formerly known as INEOS Styrolution) is a leading global styrenics supplier, and it offers a variety of ABS products tailored for different applications. Here are the key ABS products offered by the company:

Novodur®

Description: Novodur® is the brand name for a wide range of ABS products offered by Styrenix. It is known for its high impact strength, good mechanical properties, and excellent surface quality.

Applications: Automotive interiors and exteriors, household appliances, consumer electronics, and medical devices.

Terblend®

Description: Terblend® is a blend of ABS and polyamide (PA). It is designed to provide enhanced chemical resistance, toughness, and low gloss, along with the inherent benefits of ABS.

Applications: Automotive components, consumer goods, and other applications where low gloss and high impact resistance are needed.

Novodur® High Heat

Description: This grade of Novodur® is specifically formulated to withstand higher temperatures, making it suitable for applications where heat resistance is crucial.

Applications: Automotive parts, electrical and electronics housings, and industrial applications requiring high-temperature stability.

Novodur® Ultra

Description: Novodur® Ultra is an advanced grade of ABS with ultra-high gloss and excellent surface finish. It is designed for premium applications requiring superior aesthetics.

Applications: Automotive interiors, cosmetic packaging, and consumer electronics.

Luran® S (ASA/ABS Blend)

Description: Luran® S is a blend of ASA (acrylonitrile styrene acrylate) and ABS, combining the properties of both materials. It offers excellent weather resistance, ultra violet or UV stability, and good impact strength.

Applications: Automotive exteriors, outdoor applications, and building and construction materials.

Novodur® Flame Retardant (FR)

Description: This flame-retardant grade of Novodur® is designed to meet fire safety standards, offering good flame resistance while maintaining the mechanical properties of ABS.

Applications: Electrical and electronics enclosures, safety equipment, and home appliances.

Novodur® Electroplating Grade

Description: This grade is specially designed for electroplating applications, offering excellent adhesion and surface quality for metallic finishes.

Applications: Automotive grilles, badges, decorative trims, and other electroplated parts.

Figure 18: The product profile of Styrenix is similar however they use Emulsion technology which results in better products

	Acrylonitrile (AN)	Butadiene (BD)	Styrene Monomer (SM)	Other additives
General-Purpose ABS (GP-ABS)	20-30%	15-25%	50-65%	1-5% (stabilizers, colorants)
High Impact ABS (HI-ABS)	15-25%	20-30%	45-60%	1-5% (stabilizers, colorants)
Electroplating Grade ABS	20-30%	15-25%	50-60%	1-5% (e.g., electroplating enhancers, stabilizers)
Flame Retardant ABS	20-30%	10-20%	45-55%	5-10% (e.g., brominated or phosphorus-based compounds)
High Gloss ABS	20-30%	15-25%	50-60%	2-5% (acrylics, processing aids)
ABS Alloys (e.g., ABS/PC Alloys)	10-20%	5-15%	30-50%	~15-35% (polycarbonate)

SOURCE: INCRED RESEARCH, COMPANY REPORTS

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